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DYESTUFFS OF THE NAPHTHALENE-1,4,5,8-TETRACARBOXYLIC ACID DIIMIDE SERIES

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This invention relates to dyestuffs of the naphthalene-1,4,5,8-tetracarboxylic acid diimide series.

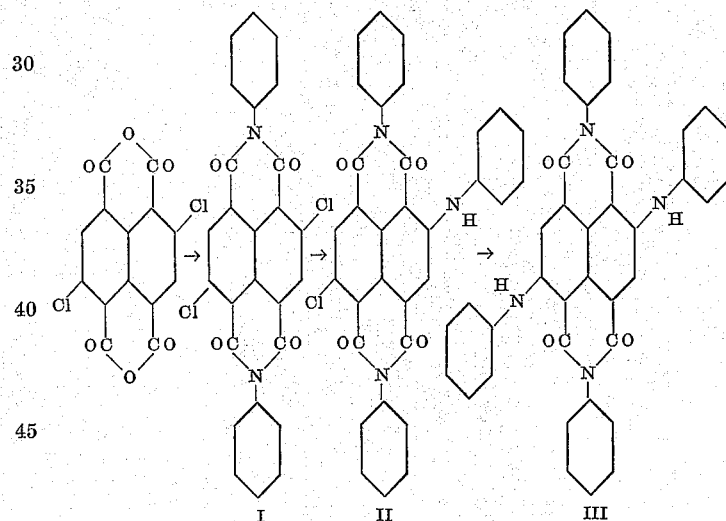
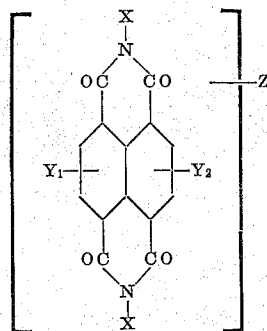
I have found that new deeply colored derivatives of naphthalene-1,4,5,8-tetracarboxylic acid are obtainable by causing a naphthalene-1,4,5,8-tetracarboxylic acid which is halogenated in the nucleus or the anhydride or imide thereof to react with ammonia or an amine, for instance, an aliphatic or aromatic amine, and simultaneously or separately exchanging the halogen for an amine radical.

By causing, for instance, 2,6-dichloronaphthalene-1,4,5,8-tetracarboxylic acid to react with aniline under mild conditions, there is first obtained the practically colorless 2,6-dichloronaphthalene-1,4,5,8-tetracarboxylic acid diphenylimide of Formula I. By further reaction with aniline, for instance, by a short boiling with an excess of aniline, there is obtained the 2-anilino-derivative of the Formula II which has a violet-red color. Finally, there is obtained by boiling for a prolonged time in aniline the deep-blue 2,6-dianilinonaphthalene-1,4,5,8-tetracarboxylic acid diphenylimide which crystallizes in the form of long needles having a metallic luster and corresponds to the Formula III.

contain substituents, for instance, alkyl, hydroxyl, carboxyl or the like. Amino-salicylic acids may, for instance, be used in the present process.

Some of the products may be used directly as dyestuffs, for instance, for dyeing the vegetable fiber from the vat or, in case they contain the salicylic acid radical, as dyestuffs capable of being chromed. Others may be transformed by sulfonation into acid dyestuffs. The sulfo group may be introduced at any stage of the process, for instance, into the parent material or into an intermediate product.

The products are new. There are obtained, for instance, those of the general formula:



Analogously there may be caused to react with ammonia or an amine other imides, for instance, unsubstituted diimides or dialkylimides of naphthalene-1,4,5,8-tetracarboxylic acids halogenated in the nucleus, as indicated more fully in the examples. The aryl nuclei of the amines may

wherein X represents hydrogen, alkyl, cycloalkyl or aryl, Y₁ represents —NH—aryl, —NH—alkyl or —NH—cycloalkyl, Y₂ means that a further substituent of the value Y₁ or chlorine may be present and Z means that the compounds may contain sulfo groups.